Pioneering Microphotonics®

BINOPTICS

Monolithically Integrated Photonic Solutions for All Optical Networks

Presentation for:

The DARPA Workshop on ***Data in the Optical Domain***

March 18, 2003

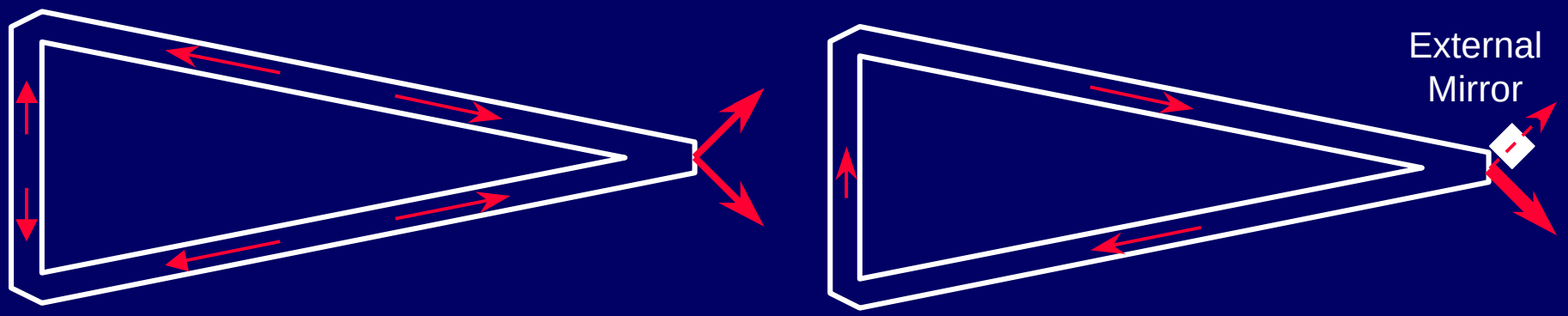
BinOptics Integrated Photonics

- Technology Platform
  - Monolithic Integration of Multiple Devices on InP
  - High Quality Etched Facets
  - Avoids Coating, Cleaving and Bar Handling
  - Freedom from Cleavage Planes
  - Novel Structures
  - Simplified Wafer-Level Testing
- Photonic Toolbox
  - Ring and FP Lasers
    - Multiple wavelengths
    - Arrays
  - Electroabsorption modulators (EAMs)
  - Photodetectors (PDs)
  - Semiconductor optical amplifiers (SOAs)
  - Beam Couplers/Splitters
  - Waveguides

Semiconductor Ring Laser

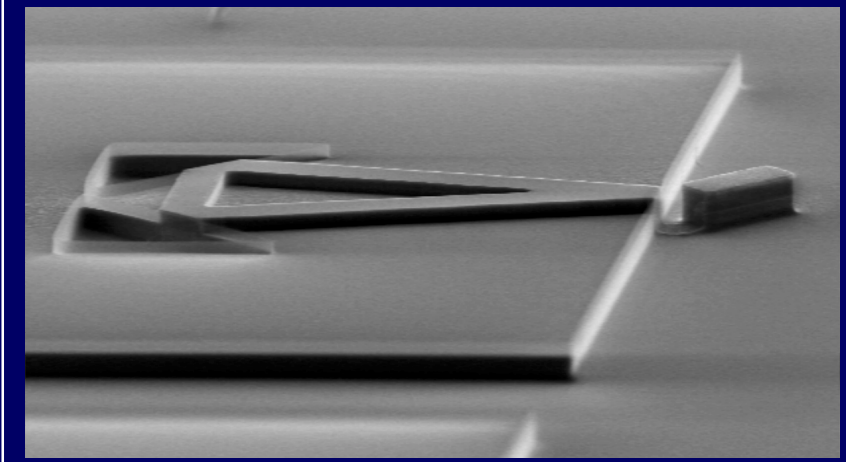
Bidirectional

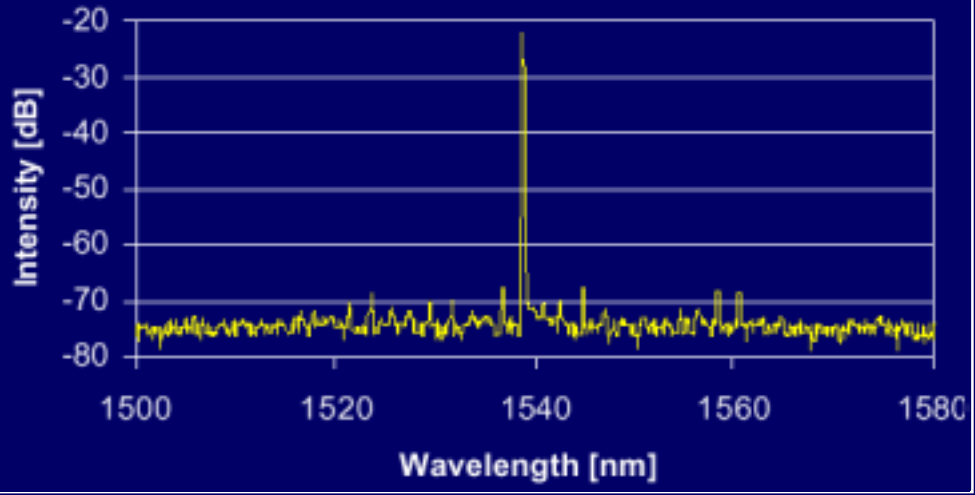
Unidirectional

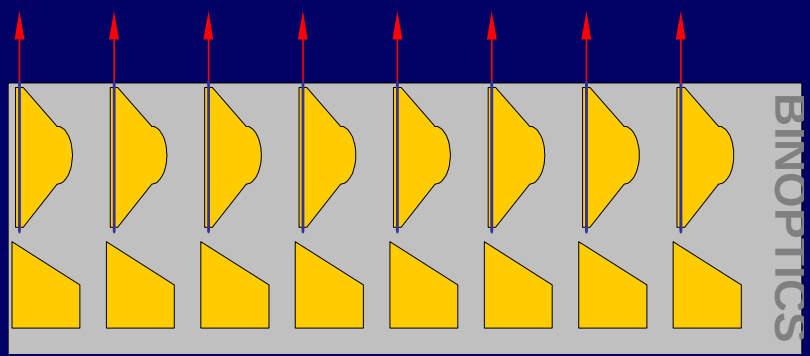


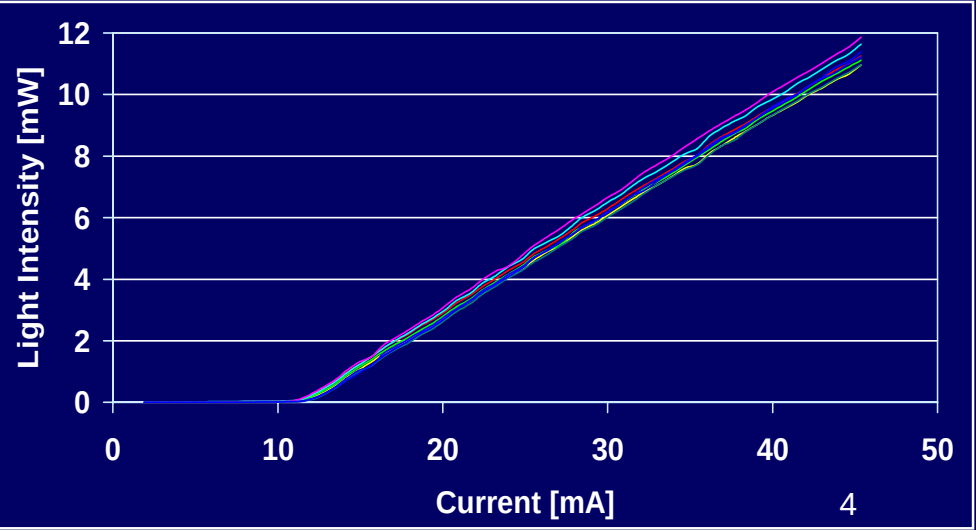
- Semiconductor ring lasers possess rich dynamic characteristics compared to conventional semiconductor lasers

Examples of Integrated Devices







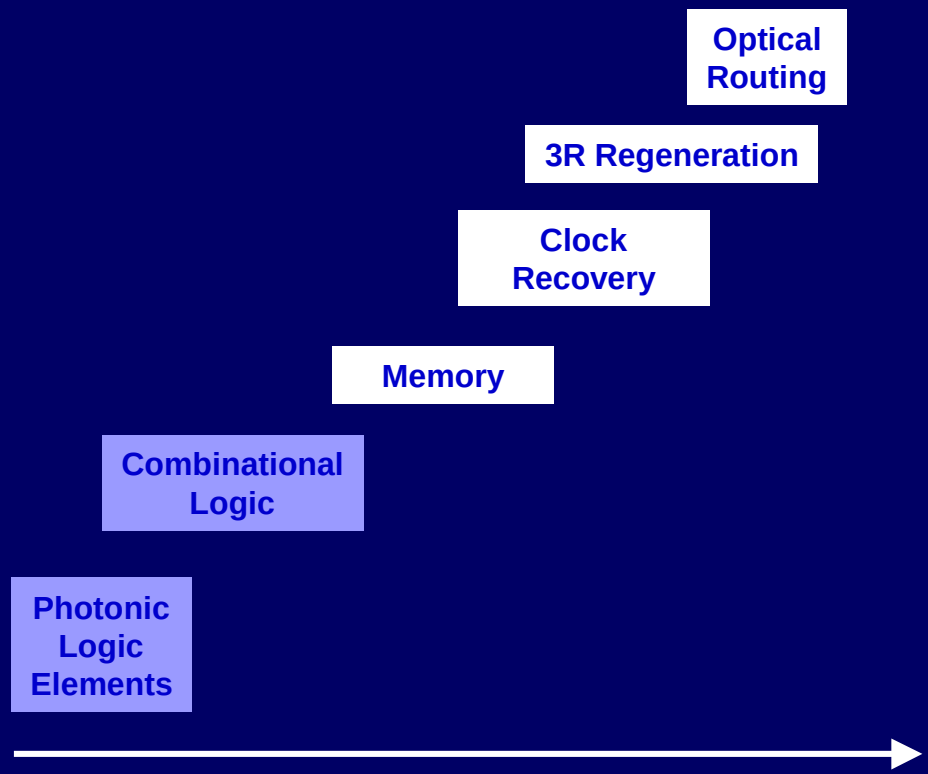


Dynamic Routing and Packet Switching Network

Key Required Elements

- photonic switch fabric
- photonic logic
- multi wavelength 2R and 3R optical regenerators
- wavelength converters
- optical isolators
- optical monitoring
- optical delay lines
- optical buffers

BinOptics Roadmap



BinOptics Technology Platform

- On-Chip Integration of Active and Passive Photonic Elements
- Unmatched Design Flexibility
- Rapid Development and Demonstration of All Optical Networking Functionalities

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